36

Date: Tuesday, 8/21/2007 3:42:40 PM
User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: SKID TUBE ASSEMBLY
Job Number	: 34168		
Estimate Number	: 10023		
P.O. Number	: N/A	Part Number	: D205634041
This Issue	: 8/21/2007 S.O. No. : N/A	Drawing Number	: D2580 REV D
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: N/A Type : LANDING GEAR	Drawing Revision	: D
Previous Run	: 34167	Material	: N/A
Written By	:	Due Date	: 9/5/2007 Qty: 1 Um: Each
Checked & Approved By	: 07.08.22		

Comment : Est Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ
Est Rev. O 06.02.28 Added paperwork EC
Est Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Additional Product

Job Number:

Seq. #:	Machine Or Operation:	Description :
1.0	DC	DOCUMENT CONTROL

KS 07.08.29 (V)

Comment: DOCUMENT CONTROL
Photocopy D205-634 bluefile & type labels per PPP D205-634 CHG002 Ep 07/09/24

2.0	D25001190	Ext'n -'I' Beam Tube 4"

Comment: Qty.: 1.0400 Each(s)/Unit Total : 1.0400 Each(s)
Pick:

Qty	Part Number	Description	Batch
1	D2500-1-190	Skid Tube Extrusion	B29602

7-8-24

3.0	D2596	205 Web

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Pick:

Qty	Part Number	Description	Batch
1	D2596	205 Web	B-33636

ANM ~~07/08~~ 07/09/06

4.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1

Comment: LANDING GEAR RESOURCE 1

1- Inspect mat'l D2500-1-190 for damage

2-Cut D2500-1-190 per Dwg D2580 if necessaryDeburr ends

3-Acid etch and Alodine tube per QSI 005 4.1

7-8-24

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**		**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

QA: N/C Closed: _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

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Job Number:

Seq. #:	Machine Or Operation:	Description :

4-Drill pilot holes using drill jig DT 8149(Do not use cutting fluid)

5-Open holes to 0.500" as per Dwg D2580without cutting fluid

6-Countersink holes as per Dwg D2580without cutting fluid

7-Deburr and blow out all chips from inside of tube

8-Bond web in place per QSI 015. Allow 12 Hrs. cure time before cutting

Pick:

Qty	Part Number	Description	Batch
A/R		Sikaflex-291	M105469

Sikaflex expire date: 08/01/07

Start Time: 1330 Date: 07/09/06

Fin Time: 1010S Date: 7-9-7

AWM 07/09/06

78-29

1K 7-9-6

5.0 BENDING — BENDING MACHINE

Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

EL 7/9/7

6.0 LANDING GEAR 1 — LANDING GEAR RESOURCE 1

Comment: LANDING GEAR RESOURCE 1

1-Deburr ends after cutting. Remove alodine from around holes ET 07-09-10

7.0 QC5 — INSPECT WORK TO CURRENT STEP

All ms go through and align

Comment: INSPECT WORK TO CURRENT STEP EL 07/09/10

8.0 D25763 — Step (Machining Detail)

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2576-3	Step	B33464

BE 07-09-11

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**		**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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Process Sheet

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Job Number: 34168 **Part Number:** D205634041

Job Number:

Seq. #:	Machine Or Operation:	Description :
9.0	D2579	Crossbolt Spacer

Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)
Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	B33057 BE 07-09-11

10.0	LARGE FAB 1	LARGE FABRICATION RESOURCE 1

Comment: LARGE FABRICATION RESOURCE 1

1-Prepare tube for welding D2576-3 StepRemove alodine as required. BE 07-09-11

2-Weld step D2576 as per Dwg. D2580 and QSI 004
A/R Aluminum Rod M105058 BE 07-09-11

3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004.
For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill
A/R Aluminum Rod M105058 BE 07-09-11

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending AWM 07/09/12 DP

5-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web.Deburr AWM/DP 07/09/12

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Deburr holes DP 7-9-13

7-Drill pilot holes for aft cap using DT 8215Open holes to 0.208". Deburr

8-Drill pilot holes for Tow ring using DT8091, open to .640"and Deburr 7 SL DP 7-9-17

11.0	QC9	VISUAL WELDING INSPECTION

Comment: VISUAL WELDING INSPECTION 07/09/19

12.0	QC5	INSPECT WORK TO CURRENT STEP

Comment: INSPECT WORK TO CURRENT STEP 07/09/19

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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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Job Number: 34168 **Part Number:** D205634041

Job Number:

Seq. #:	Machine Or Operation:	Description :
13.0	HAND FINISHING1	HAND FINISHING RESOURCE #1

Comment: HAND FINISHING RESOURCE #1
Pressure wash as per QSI 005 HD 07-09-19 (1)

14.0	POWDER COATING	POWDER COATING M105068 (1X)

Comment: POWDER COATING
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3 M-L 07/09/19

15.0	QC3	INSPECT POWDER COAT/CHEMICAL CONVERSION

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION FL 07/09/19 (1)

16.0	D2855	Cap

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Cap
Batch: B29608 FL

17.0	AN35A	Bolt

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
Bolt
Batch: M100188 FL

18.0	AN960JD10L	Washer

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
Washer
Batch: M104885 FL

19.0	ALS71032130	Insert

Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)
Insert
Batch: M103495 FL 07/09/19 (1)

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W/O:		WORK ORDER CHANGES						
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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Job Number: 34168 **Part Number:** D205634041

Job Number:

Seq. #:	Machine Or Operation:	Description :
20.0	AN3C4A	BOLT

Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)
BOLT
Batch: M105407 FL

21.0	AN960C10L	washer

Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)
washer M104557 FL

22.0	D356613	GASKET

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
GASKET
Batch: B32660 FL

23.0	D35665	GASKET

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
GASKET
Batch: B33806 FL

24.0	D35661	GASKET

Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
GASKET
Batch: B34200 FL

25.0	D356413	WEARSHOE

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
WEARSHOE
Batch: B33761 FL

26.0	D356411	WEARSHOE

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
WEARSHOE
Batch: B33799 FL 07/09/19

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W/O:		WORK ORDER CHANGES						
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Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

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Process Sheet

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Job Number: 34168 **Part Number:** D205634041

Job Number:

Seq. #:	Machine Or Operation:	Description :
27.0	D35649	WEARSHOE

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
WEARSHOE
Batch: B33457 FL

28.0	D35645	WEARSHOE

Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
WEARSHOE
Batch: B32738 FL

29.0	D25943	O-Ring

Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
O-Ring
Batch: B27168 FL

30.0	D25941	Plug

Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
Plug
Batch: B31109 FL

31.0	HAND FINISHING1	HAND FINISHING RESOURCE #1

Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates
A/R Sikaflex-291 M105469
Sikaflex expire date: 08-01

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive
A/R Sikaflex-291 M105469
Sikaflex expire date: 08-01

FL 07/09/10

5-Wing Walk as per Dwg D2580 and QSI 005 4.4 Batch: M105386
M105386 MS 07-09-20 ①

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W/O:		WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**		**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes (No) **DQA:** _____ **Date:** 07/05/25

QA: N/C Closed: _____ **Date:** _____

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DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

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Job Number: 34168 **Part Number:** D205634041

Job Number:

Seq. #:	Machine Or Operation:	Description :
32.0	QC5	INSPECT WORK TO CURRENT STEP

8/09/21

Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

33.0	PACKAGING 1	PACKAGING RESOURCE #1

Comment: PACKAGING RESOURCE #1
Identify and pack for shipping as per PPP D205-634-041
Location: H
PPP Rev:

7/9/24 SP

34.0	QC21	FINAL INSPECTION/W/O RELEASE

Comment: FINAL INSPECTION/W/O RELEASE

8/09/25

Job Completion

8-09-25

34168

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

QA: N/C Closed: _____ **Date:** _____

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			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DART

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS

A	96.09.16	NEW ISSUE
B	96.12.02	AS MANUFACTURED
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183

RELEASED
07.06.28

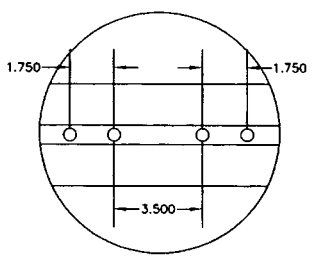
QTY -041	QTY -045	Part Number	Description
X		**D2580-041**	**SKIDTUBE ASSEMBLY**
	X	**D2580-045**	**SKIDTUBE ASSEMBLY**
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
2) ALL DIMENSIONS ARE IN INCHES
3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/-291.
6) WELDING TO BE DONE PER DART QSI 004.
7) FINISH:
   SEE NOTES ON
   PAGE 2 FOR D2580-041 AND
   PAGE 3 FOR D2580-045
8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

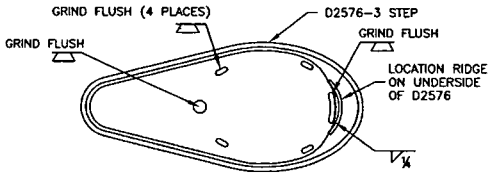
SHOP COPY
RETURN TO ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT WITHOUT NOTICE
WORK ORDER NO. 34168

DETAIL A
SCALE 5:24

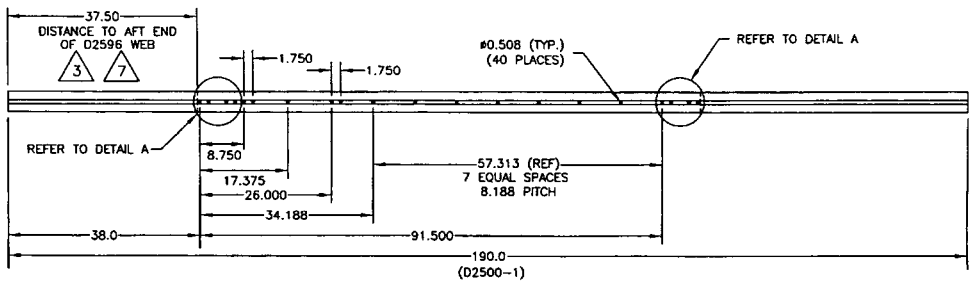


RELEASED
07.02.28

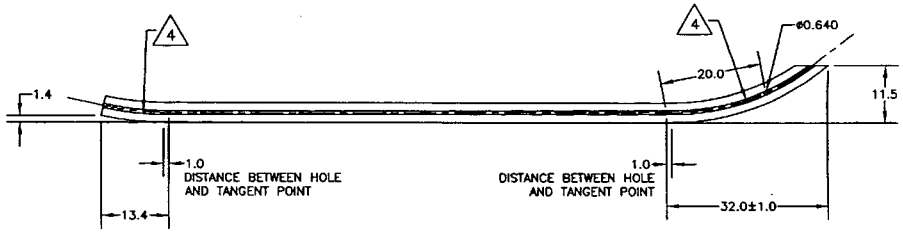
DETAIL B
SCALE 5:24



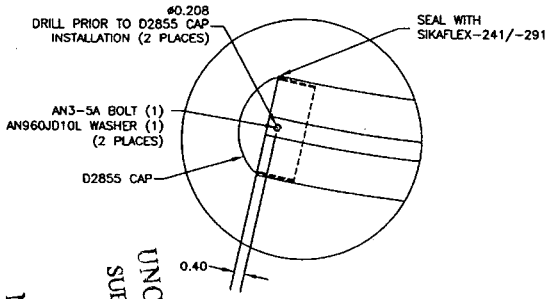
D2580-1 DRILLING DETAIL



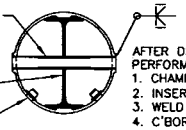
D2580-1 BENDING AND CUTTING DETAIL



DETAIL C
SCALE 5:24

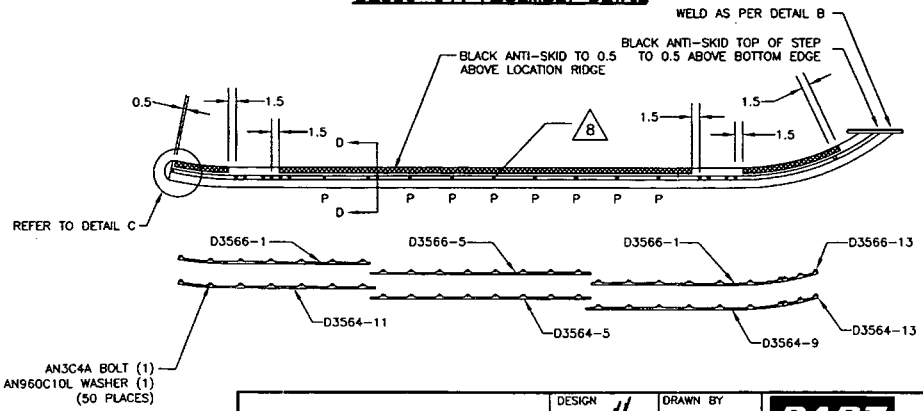


SECTION D-D
SCALE 5:24



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO ø0.437 X 1.00 DEEP

D2580-041 ASSEMBLY DETAIL

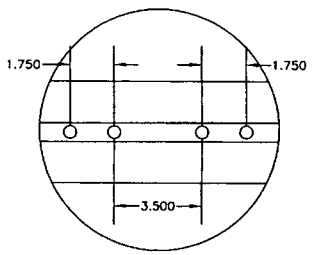


D2580-041 NOTES

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

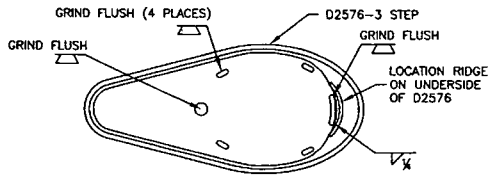
DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2580 REV. D
DATE 07.02.27		SHEET 2 OF 3
		TITLE 205 SKIDTUBE ASSEMBLY SCALE 1:24

DETAIL E
SCALE 5:24

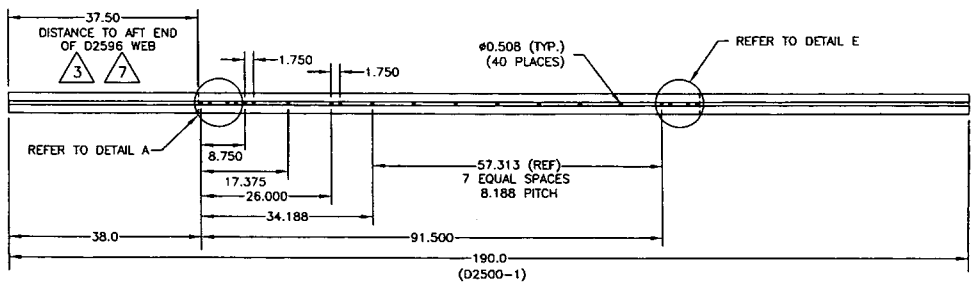


RELEASED
07.02.28

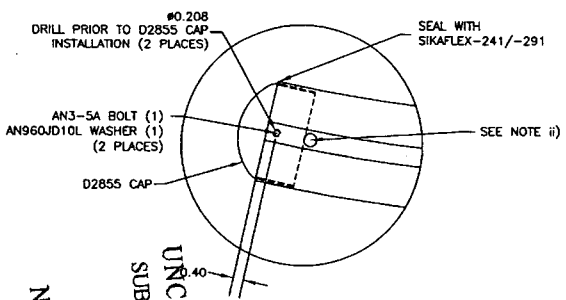
DETAIL F
SCALE 5:24



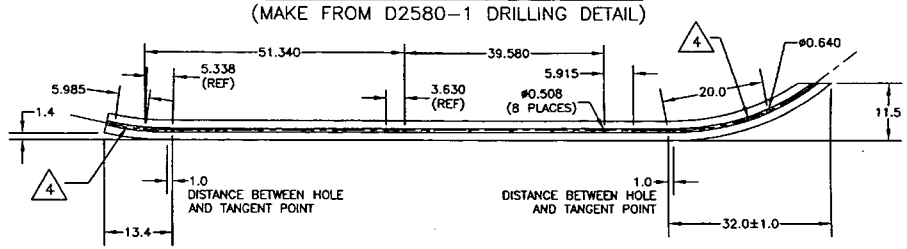
D2580-1 DRILLING DETAIL



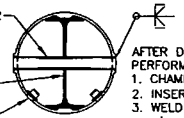
DETAIL G
SCALE 5:24



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)

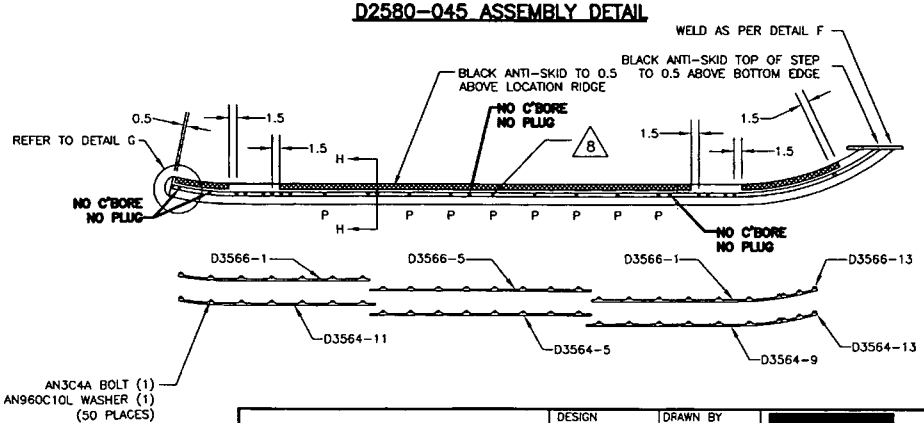


SECTION H-H
SCALE 5:24



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO ø0.437 X 1.00 DEEP

D2580-045 ASSEMBLY DETAIL



UNCONTROLLED COPY
SUBJECT TO AMENDMENT WITHOUT NOTICE
SHOP COPY
RETURN TO ENGINEERING
WORK ORDER NO. 34168

C

D2580-045 NOTES

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DESIGN	DRAWN BY	DART AEROSPACE LTD. HAWKESBURY, ONTARIO, CANADA
RH	RH	
CHECKED	APPROVED	DRAWING NO. D2580 — REV. D
		SHEET 3 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY — SCALE 1:24

NO. 126

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name Barclay. E
Joint Welding Procedure Tig
Part number and Job number D2056340-41 / B33771 A

TEST WELDS REQUIRED

BASE METAL Alum
Penetration Complete [ ] Partial [✓]
Current AC [✓] DC [ ]

WELDING PROCESS Tig
Single Weld [✓] **Double Weld** [ ]
Backing YES [ ] NO [✓]

Position **Vertical** Down [ ] Up [ ]

Sheet Groove	1G [ ]	2G [ ]	3G [ ]	4G [ ]
Tube Groove	1G [ ]	2G [ ]	5G [ ]	6G [ ]
Sheet Fillet	1F [ ]	2F [ ]	3F [ ]	4F [ ]
Tube Fillet	1F [ ]	2F [ ]	4F [ ]	5F [ ]

Crossbolt Spacer Welded into _____ Skidtube

TEST RESULTS

Visual	Pass [✓]	Fail [ ]
Penetration	Pass [✓]	Fail [ ]
Crossbolt Spacer	Pass [✓]	Fail [ ]

The above named individual is qualified in accordance with AWS D17.1.2001 to weld

Date of Test Coupon 07/09/05 **Qualifier** David Duval